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# AN ACCOUNT
# OF A
# REMARKABLE TRANSPOSITION
# OF THE
# VISCERA,
# IN THE
# *HUMAN BODY.*

BY MATTHEW BAILLIE, M.B.

[FROM THE PHILOSOPHICAL TRANSACTIONS.]

EGE·OF·SURGEONS·OF·ENGLAND

*TO JOHN HUNTER, ESQ. F.R.S.*

*DEAR SIR,*

*A VERY ſingular variety having occurred lately in the ſtructure of the human body, I beg leave to communicate an account of it by your means to the Royal Society, if you ſhould think it worthy of their notice. It happens by a very uncommon concurrence of circumſtances, that while I am naturally led by the ties of affinity to apply to you upon this occaſion, I can gratify my pride by thinking it is at the ſame time to the perſon who is poſſeſſed of the firſt reputation for his unwearied reſearches in one of the moſt extenſive, as well as intereſting, parts of the ſyſtem of Nature.*

*I am, &c.*

*M. BAILLIE.*

*Great Windmill-ſtreet,*
*April* 12, 1788.

## AN ACCOUNT OF A REMARKABLE TRANSPOSITION OF THE VISCERA, IN THE HUMAN BODY.

Read (at the Royal Society) May 8, 1788.

THERE is nothing which tends more to illuſtrate the powers and the wiſdom of Nature than the inveſtigation of the ſtructure of animals. We there find a moſt wonderful delicacy of mechaniſm, and exquiſitely adapted to a variety of purpoſes. This, however, is not to be better ſeen by following Nature in her common tract, than by obſerving her wanderings. In theſe ſhe often ſhews more particularly the extent of her powers, and throws light on her ordinary plans. It is ſuch circumſtances which give importance or value to the obſervation of ſingular phænomena. The variety in animal ſtructure, an account of which I have the honour of preſenting to this learned Society, is a complete tranſpoſition, in the human ſubject, of the thoracic and abdominal viſcera to the oppoſite ſide from what is natural.

It is ſo extraordinary as ſcarcely to have been ſeen by any of the moſt celebrated anatomiſts; and, indeed, has been but very generally noticed at all. The circumſtance has been mentioned; but it has not been particularly deſcribed ſo as to make it thoroughly known, or to eſtabliſh its certainty. It was hanging in the minds of many as doubtful, whether ſuch a variety did really exiſt.

There is one circumſtance that attends the account of the preſent caſe, which has not always happened in the record of ſingular phænomena, viz. that the luſus has been examined by phyſicians and ſurgeons of the firſt reputation in this large town; and has been in ſome meaſure open to the gratification of public curioſity. Such a circumſtance (were it neceſſary) would give the ſtamp of authenticity to appearances even much farther removed from the ordinary plans of Nature.

I have been at the pains to conſult many authors upon this ſubject, but with very little ſatisfaction. I ſhall not enter into a detail of what I have met with in the courſe of theſe reſearches; but ſhall briefly notice, that when any luſus of this ſort is mentioned, it is commonly in a ſingle ſentence or two, and the tranſpoſition is not marked as univerſal, or it is a change in the ſituation of ſome viſcus from diſeaſe. In ſhort, I have only found this ſingular luſus naturæ deſcribed by Cattierius, M. Mery, and M. Daubenton; but by none of them is it ſufficiently particular. Enough has been ſaid to point out that they had exactly met with the ſame ſort of monſtroſity; but many circumſtances have been omitted, which I hope will be ſupplied by the preſent account, which I proceed immediately to lay before the Society.

The perſon who is the ſubject of this paper was a male, near forty years of age, ſomewhat above the middle ſtature, and of a clean active ſhape. He was brought for diſſection, in the common way, to Windmill-ſtreet. Upon opening the cavity of the thorax and abdomen, the different ſituation of the viſcera was ſo ſtriking as immediately to excite the attention of the pupils who were engaged in diſſecting it; and Mr. CRUIKSHANK, as well as myſelf, were very ſoon informed of the ſingularity. We were much ſurprized, as well as pleaſed with the appearance; and I began immediately to examine every part of the change with conſiderable attention: for this purpoſe, after deſiring a drawing to be made of the appearances as they were found upon opening the body, I next day injected it. The repeated diſſections have furniſhed various views, which are repreſented faithfully by drawings, and which I hope will enable me to give a tolerably diſtinct account of this ſingular luſus naturæ. I ſhall not enter in my deſcription into unneceſſary minutiæ: this would render the paper leſs ſuited to the Society, would not convey more information to perſons thoroughly acquainted with anatomy, and would rather tend to obſcure what is more important to thoſe who have not given ſo much attention to ſubjects of this nature. It may not be improper to obſerve, that, beſides the tranſpoſition in the viſcera of this perſon, there are ſeveral peculiarities which ſometimes occur. I have taken notice of them in my deſcription, although they are entirely independent of the tranſpoſition.

## DESCRIPTION OF THE THORAX.

The mediaſtinum, or anterior duplicature of the pleura ſeparating the two cavities of the cheſt from each other, was found to incline obliquely downwards to the right ſide, fully as much as it does commonly to the left ſide of the cheſt. The pericardium too inclined obliquely to the right ſide. On preſſing it gently away from the lungs, the phrenic nerves came diſtinctly into view, in their common ſituation; but the right phrenic nerve ran more obliquely, and was longer than the left. The lung upon the right ſide was divided by a ſingle oblique fiſſure into two lobes, having at the ſame time a deficiency oppoſite to the apex of the heart; and the lung on the left ſide was divided into three lobes, exactly contrary to what is found in ordinary caſes.

On opening the pericardium, the apex of the heart was found to point to the right, nearly oppoſite to the ſixth rib; and its cavities, as well as large veſſels, were completely tranſpoſed. What are commonly called the right auricle and ventricle were ſituated on the left ſide; and the left auricle and ventricle on the right. The pulmonary artery aſcended towards the right ſide of the cheſt. The aorta was alſo directing its arch to the right; and the vena cava ſuperior, as well as inferior, were ſeen opening into their auricle on the left ſide of the ſpine.

On the outſide of the pericardium the tranſpoſition of the larger veſſels was very ſtriking. The longer ſubclavian vein was paſſing from the left ſide obliquely to the right, before the branches which are ſent off from the arch of the aorta. The left carotid and ſubclavian arteries were found to ariſe from the arch of the aorta by one common trunk; the right carotid and ſubclavian to ariſe ſeparately.

In the duplicature of the pleura behind, or what may be called the poſterior mediaſtinum, there was a change correſponding to what we have already deſcribed. The deſcending aorta was found paſſing on the right ſide of the ſpine. The œſophagus was before it, inclining more and more to the right towards its lower extremity; and it at length perforated the diaphragm ſomewhat on the right ſide of the ſpine. The vena azygos was on the left ſide of the ſpine, opening in the common way into the vena cava ſuperior, which we formerly mentioned to be alſo tranſpoſed in its ſituation. The thoracic duct was ſeen in the middle, between the deſcending aorta and the vena azygos, in ſome places forming a plexus of ſmall branches, in another dividing itſelf into two branches, which afterwards reunited in a common trunk, and at length climbing up to terminate in the angle between the jugular and ſubclavian veins on the right ſide of the body. The recurrent nerve of the parvagum, on the right ſide, paſſed round the beginning of the deſcending aorta, and on the left, paſſed round the common trunk of the carotid and ſubclavian arteries. The large intercoſtal nerves being exactly under the ſame circumſtances on each ſide, it was impoſſible there could be any tranſpoſition in them. It appears then, from the foregoing deſcription, that every thing admitting of ſuch a change was completely tranſpoſed in the thorax.

## OF THE ABDOMEN.

The liver was ſituated in the left hypochondriac region; the ſmall lobe being towards the right, and the great lobe in the left ſide. The ligaments, uniting it to the diaphragm, correſponded to this change, the right tranſverſe ligament being longer, and the left being ſhorter than uſual. The ſuſpenſory ligament could undergo little change, except that of being puſhed to the left ſide along with the liver. On preſſing upwards the liver, ſo as to exhibit its poſterior and under ſurface, the gall-bladder was ſeen on the left ſide preſerving its proper relative ſituation to the great lobe of the liver; and the veſſels of the portæ were found upon diſſection to be tranſpoſed, correſponding to the change of circumſtances. The hepatic artery was found climbing up obliquely from the right towards the left, before the lobulus ſpigelii, and entered at the portæ into the ſubſtance of the liver by two or three branches on the right of the other veſſels. The ductus communis cholidochus was on the left of the other veſſels, being formed from the ductus hepaticus and ductus cyſticus in the common way; and it paſſed obliquely downwards on the left, to terminate in the duodenum. What was moſt remarkable, of which indeed I never ſaw or heard of an inſtance before, it terminated in the forepart of the duodenum. The vena portarum paſſed behind the hepatic artery and ductus communis cholidochus, aſcending obliquely towards the left ſide.

The ſpleen was ſituated in the right hypochondriac region, adhering to the diaphragm in the common way. What was very remarkable was, there being three ſpleens, nearly of the ſize of a pullet's egg, found adhering to the larger ſpleen by ſhort adheſions; beſides two other ſtill ſmaller ſpleens which were involved in the epiploon at the great end of the ſtomach. I never ſaw ſo many ſmall ſpleens in any one ſubject. The pancreas was found on the right ſide behind the ſtomach, running obliquely from the ſpleen to the curviture of the duodenum, and had its duct entering in common with the ductus communis cholidochus into the cavity of that inteſtine. The ſplenic veſſels were paſſing along the upper edge of the pancreas to the right ſide, correſponding to the change of ſituation in the pancreas and ſpleen.

The ſtomach was ſituated on the right ſide, partly hid by the ſmall lobe of the liver, was paſſing to the left, and terminating in the pylorus, rather on the left ſide of the ſpine. The duodenum took a moſt ſingular courſe; it paſſed to the right ſide, behind the ſmall end of the ſtomach; it then turned upon itſelf, towards the left ſide; it afterwards took its proper ſweep to the right ſide, paſſing behind the ſuperior meſenteric artery and the greater meſaraic vein. The meſentery began to be formed on the right ſide, inſtead of the left, as in ordinary caſes. The ilium terminated in the great inteſtine on the left ſide, and there was in it a diverticulum of conſiderable ſize, a luſus not unfrequently occurring. The cæcum was ſituated on the left pſoas magnus and iliacus internus muſcles. The tranſverſe arch of the colon paſſed from the left to the right ſide of the body; and the ſigmoid flexure croſſed over the right pſoas, to get into the cavity of the pelvis.

The kidnies had their veſſels tranſpoſed, as we ſhall remark more particularly afterwards. The renal capſules had undergone no change, as no variety could be produced by a tranſpoſition.

The aorta paſſed between the crura of the diaphragm into the cavity of the abdomen; and adhered, in its courſe to the ſpine, on the right ſide of the vena cava inferior. Its branches were directed in their courſe, correſponding to the peculiar ſituation of the viſcera. The ſplenic and coronary arteries were paſſing to the right ſide; and the hepatic artery obliquely to the left. The ſuperior and inferior meſenteric arteries were directed to the right ſide. There were no change in the ſpermatic arteries; any tranſpoſition in the teſticles (if ſuch a thing could take place) not being capable of affecting them. The lumbar arteries could alſo undergo little change, except that the left lumbar arteries muſt neceſſarily, from the peculiar ſituation of the aorta, be the longeſt. The vena cava inferior perforated the tendinous portion of the diaphragm, and adhered in its courſe to the ſpine on the left ſide of the aorta.

The right emulgent vein was much longer than uſual, paſſing from the right kidney, before the aorta, to terminate in the vena cava ſuperior; and the left emulgent much ſhorter, paſſing from the left kidney to the vena cava, which was ſituated on the left ſide of the ſpine. The right ſpermatic vein was found to open into the right emulgent; and the left into the vena cava inferior, about an inch under the left emulgent. The vena portarum was changed from its natural courſe, paſſing obliquely upwards to the left ſide; and its large branches, viz. the vena ſplenica, meſaraica major and minor, were all directed towards the right ſide of the ſpine.

There was no change in the intercoſtal nerve within the cavity of the abdomen; nor does it ſeem to be capable of being affected by any tranſpoſition of parts. We ſee then, that there was a complete tranſpoſition of the abdominal viſcera, each of them preſerving its proper relative ſituation to the others.

I examined the brain, the organs of ſenſe, of generation, the muſcles and blood-veſſels of the extremities, but found nothing in them remarkable. Indeed, I had no expectation of it; for all theſe parts are perfectly independent of thoracic or abdominal viſcera; but I did it to ſatisfy myſelf and the curioſity of others, who might wiſh to put ſuch a queſtion, or have ſuch a queſtion ariſing in their minds.

The perſon ſeems to have uſed his right hand in preference to his left, as is uſually the caſe, which was readily diſcovered by the greater bulk and hardneſs of that hand, as well as the greater fleſhineſs of the arm. It was not to be expected he ſhould be left-handed; but I mention this circumſtance too, with a view to ſatisfy a curioſity which I know has been excited in many who have heard of this luſus.

I have been at conſiderable pains to learn ſomething of the hiſtory of this perſon during life; but the particulars I have heard, are applicable only to the circumſtances of common men, having no connection with ſingularity of ſtructure; and therefore, I think, it would be abuſing the time of the Society to give any account of them. One thing it may be right to mention is, that the perſon, while alive, was not conſcious of any uncommon ſituation of his heart; and that his brother, whom I have ſeen, has his heart pointing to the left ſide, as in ordinary caſes. Indeed, there was little reaſon to expect that we ſhould meet with any thing particular in the account of his life. His health could not be affected by ſuch a change of ſituation in his viſcera; nor could there ariſe from it any peculiar ſymptoms of diſeaſe. Still leſs could there be any connection between ſuch a change and his diſpoſitions, or external actions. He might have known that his heart was directed towards the right ſide; but if we conſider how little every perſon, eſpecially thoſe of the lower claſs, are attentive to circumſtances not very palpable, it was ſcarcely to be expected he ſhould know it. If I had met with any thing in his life which was at all referable to the ſingularity of ſtructure, I ſhould have been very glad to have gratified the public curioſity by giving an account of it*.

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* Since the above luſus has occurred, I have ſeen, in the poſſeſſion of Mr. Payne, ſurgeon, a fœtus at the full time, with the viſcera tranſpoſed. In the Anatomial Collection of Chriſt Church, in Oxford, there is a heart tranſpoſed that had belonged to a very ſmall fœtus; but the fœtus itſelf is not preſerved.

Every ſingular phænomenon in animal ſtructure is worth remarking, even if it ſhould not lead immediately to any uſeful obſervation; but it becomes more important if it ſhould tend to throw any light upon the principles of Nature in the formation of animals. It is reaſonable to think, that Nature ſhould follow ſome general plan in her operations. There is ſome effect which ſhe has in view, and ſhe will generally employ the ſame means to produce it. In the ſtructure of any animal, her view is to form ſuch a combination of parts as to render the animal fitted for certain purpoſes. She will commonly form the ſame combination where the ſame purpoſes are to be ſerved; or, in other words, there will be the ſame ſtructure in the ſame ſpecies of animals. The ſame effect, however, may be produced, without a ſtrict adherence to the employment of the ſame means, as we find to be the caſe in all human inventions; and therefore there is no reaſon why Nature ſhould not ſometimes deviate from her ordinary plans. Accordingly we find there is much variety in animal ſtructure; but this does not commonly affect the animal functions. Under this reſtriction, the variety is ſo great in the appearances of every part of an animal, that it is almoſt impoſſible to examine any two animals of the ſame ſpecies without remarking many differences.

In the bony compages of an animal we find little variety in the extremities of bones where there is the apparatus of a joint, becauſe a particular ſhape is beſt adapted to a particular kind or latitude of motion. In other parts of the bones, where a difference of features is not material, there is great variety, as in the foramina, depreſſions, ridges, and ſutures of bones.

The ſame general rule will apply to variety in muſcles. The principal object is a certain inſertion near a joint, ſo as to give a determined direction of motion. With reſpect to ſuch inſertions, there is, comparatively ſpeaking, little variety; but there is a great difference in the bodies and connections of muſcles, which have no ſhare in the regulation of the motion.

There is no part of an animal where there is a greater latitude of variety than in the diſtribution of blood-veſſels. The reaſon of it is very obvious. The only object in the diſtribution of blood-veſſels is, to carry blood to every part of the body, and bring it back to the heart. The parts of an animal, in order to be ſupported, muſt be viſited by ſucceſſive changes of freſh blood; but it ſurely cannot be an object of importance, whether the blood paſſes by one route or another. Hence the variety in blood-veſſels is extremely great. Still, however, there is a method in the deviations of Nature, ſo that they may be marked or noted, the ſame varieties occurring in different animals.

It cannot be at all important to the function of a viſcus, whether it be in one maſs, or in ſeparate portions. The ſtructure being the ſame, the ſame action will take place. Hence we often find the two kidnies joined together, forming one maſs; and not unfrequently, two or three ſpleens beſides the common one. Neither can it be important, whether a viſcus ſhould always be of the ſame ſhape, becauſe its functions do not depend on ſhape, but on ſtructure: we find accordingly, in this particular, much variety.

There are many of the viſcera which are connected together in their functions, or by the junction of large blood-veſſels, in ſuch a way as to require nearly the ſame relative ſituation among themſelves. This becomes alſo neceſſary in order to preſerve the general ſhape of the animal. Accordingly we find, that when any important viſcus is changed in its ſituation, it affects the ſituation of other viſcera, requiring in them a correſponding change. We ſaw in the perſon who is the ſubject of this paper, that a change in the ſituation of the heart and liver was accompanied with a change of ſituation in the ſtomach, ſpleen, pancreas, and in ſhort the whole abdominal viſcera. This, however, is a great deviation in Nature; for it is nothing leſs than changing almoſt the whole vital ſyſtem in an animal; and therefore it rarely happens.

In ſuch a change, it does not appear that the functions can be affected, as they depend on ſtructure and ſituation, which are both preſerved. Hence the perſon, who is the ſubject of this paper, arrived at the age of maturity; and might have continued to have lived to an extreme old age. The human machine might have been conſtructed in this way generally; and, under ſuch circumſtances, what is now called the natural ſituation of parts, would have been as ſingular as the preſent phænomenon.

There appears to be leſs variety in the nervous ſyſtem of animals of the ſame ſpecies than in moſt parts of the body. There is ſcarcely any difference in the appearance of the brain; and much leſs in the diſtribution of the nerves than of the blood-veſſels. There is alſo little variety in the organs of ſenſe: perhaps the mechaniſm in both theſe is nicer, ſo that a conſiderable deviation would interfere with their peculiar functions.

The moſt common great deviations which Nature produces in the ſtructure of an animal, are various kinds of monſtroſity, by which the animal becomes often unfit for continuing its exiſtence. This ſort of imperfect formation, ſo much below the ſtandard of Nature's common work, is probably with a view to check the propagation of great varieties, and thereby to preſerve an uniformity in the ſame ſpecies of animals.

It has been much agitated, whether monſtroſities depend on the original formation; or are produced afterwards in the gradual evolution of an animal. This does not appear to be a queſtion of much importance; nor, perhaps, can it be abſolutely determined. But, upon the whole, it is more reaſonable to think, that the ſame plan of formation is continued from the beginning, than that at any ſubſequent period there is a change in that plan.

It may be obſerved, that it is exactly the ſame creative action which produces the natural ſtructure, or any deviation from it; for in caſes of deviation, the action is either carried too far, ceaſes too ſoon, or is diverted into uncommon channels. This will explain the various kinds of monſtroſity from redundancy, deficiency, or tranſpoſition of parts.

THE END.